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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/549,918	04/14/2000	Kiyoshi Taguchi	10059-350US	8909

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2005 MARKET STREET, SUITE 2200
PHILADELPHIA, PA 19103-7013

EXAMINER

LANGEL, WAYNE A

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 01/15/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

549918

Applicant(s)

Taguchi et al

Examiner

Langel

Group Art Unit

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—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 11-25-02
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-14 is/are pending in the application.
- Of the above claim(s) 7-9 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-6 and 10-14 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6 and 10-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lywood et al. in view of either Chen et al. or Yperen et al. Lywood et al. disclose a process for subjecting a gas stream containing hydrogen, carbon monoxide, and steam to the water gas shift reaction (see the Abstract), and teach in the paragraph bridging columns 3 and 4 that the catalyst may constitute platinum, palladium, or mixtures thereof on an alumina support. The difference between the process disclosed by Lywood et al., and that recited in applicant's claims, is that Lywood et al. do not specifically disclose that the alumina support should have a specific surface area of at least 10 m²/g or more. Chen et al. teach at column 1, lines 25-37 that it is well-known in the art to provide oxidation catalysts in the form of a catalytic material comprising a refractory inorganic oxide support material such as activated alumina, on which is dispersed a catalytic metal component such as a platinum group metal

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component. Chen et al. further disclose at column 5, lines 1-33 that the alumina should be characterized by a high surface area of at least about 60 m²/g. Yperen et al. disclose at column 1, lines 6-35 that catalysts should typically comprise a catalytically active component applied in highly dispersed form on support materials in order to assure a high catalytic activity with the smallest possible amounts of active components, and that to this end support materials are used which have a large specific surface area to receive the catalytically active components. Yperen et al. specifically teach at column 4, lines 60-63 that the support should be aluminum oxide with a BET surface area of at least 100 m²/g. It would be prima facie obvious from either Chen et al. or Yperen et al. to provide the alumina support disclosed at column 3, lines 56-60 of Lywood et al. with a BET specific surface area of at least 10 m²/g, since Chen et al. and Yperen et al. both disclose at the aforementioned passages that it is desirable in the art of catalysis that the support material be aluminum oxide and have a high specific surface area of at least 10 m²/g. Regarding claim 6, it would be within the skill of one of ordinary skill in the art to determine a suitable or optimum amount of palladium to employ in combination with the platinum in the catalyst disclosed at column 3, lines 56-60 of Lywood et al. Regarding claims 12-14, Chen et al. disclose at column 1, lines 25-37 that the refractory carrier

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substrate may be cordierite, or mullite in the form of a honeycomb. Yperen et al. has a similar disclosure at column 1, lines 21-35. Regarding claim 10, catalyst carriers are conventionally in the form of pellets. It would be further obvious to employ the aluminum oxide support of Lywood et al. in the form of pellets, especially since Chen et al. and Yperen et al. suggest at column 1, lines 25-37 and column 1, lines 11-35, respectively, that the support may be any "catalytically inert carrier body".

Claims 1-3 and 10-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singleton in view of either Chen et al. or Yperen et al. Singleton discloses the water gas shift reaction, and teaches that the catalyst may be alumina-supported platinum. (See column 6, lines 19-31.) The difference between the process disclosed by Singleton, and that recited in claims 1-3 and 10-14, is that Singleton does not specifically disclose that the alumina support should have a specific surface area of at least 10 m²/g. Chen et al. and Yperen et al. are relied upon as discussed hereinbefore. It would be prima facie obvious from either Chen et al. or Yperen et al. to provide the alumina support for the catalyst disclosed at column 6, lines 19-31 of Singleton with a BET specific surface area of at least 10 m²/g, since Chen et al. and Yperen et al. both disclose the benefits of

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employing such high surface area supports in the field of catalysis.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lywood et al. or Singleton in view of either Chen et al. or Yperen et al. as applied to claim 1 above, and further in view of Schneider et al. It would be further obvious from Schneider et al. to stabilize the catalyst of either Singleton or Lywood et al. with either cerium or zirconium, since Schneider et al. teaches in Example 8 in column 8, line 23 - column 9, line 24 that water gas shift catalysts may be stabilized with either zirconium oxide or cerium oxide. It would be expected from Schneider et al. that the catalyst of either Singleton or Lywood et al. could also be stabilized with zirconium or cerium, since the catalyst of Schneider et al. may contain a platinum group metal. (See the Abstract.)

Towler et al. is made of record for disclosing the water gas shift process, and teaching at column 8, lines 8-18 that supported platinum may be employed as the catalyst.

Von Thienen et al. is made of record for disclosing an aluminum oxide catalyst support having a specific surface area $\geq 70 \text{ m}^2/\text{g}$.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (703) 308-0248. The examiner

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can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on (703) 308-3837. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc

January 10, 2003

Wayne A. Langel
WAYNE A. LANGEL
PRIMARY EXAMINER